

with general plan land use designations or zoning are not evaluated herein. However, inconsistency with these plans could result in a significant adverse land use impact.

The cost and availability of water from new storage and conveyance facilities will depend on the alternative selected, the location of facilities proposed, and amount of new water from each of these facilities. Neither a cost analysis nor a willingness-to-pay study have been completed. Consequently, the allocation of new water by region is uncertain.

Changes in operations to protect fishery resources are not anticipated to adversely affect agricultural land and water use. Water supply is not expected to be affected in these regions; therefore, agricultural land and water use resources would not be significantly affected.

### **Bay Region**

The compatibility and consistency of potential actions with land use plans is not evaluated in this programmatic-level analysis. However, inconsistency between applicable Preferred Program Alternative elements with existing area city and county land use plans could result in a significant adverse land use impact.

Potential land use impacts on important agricultural land in the Bay Region are anticipated to be minimal and have not been quantified.

Agricultural water users in the Bay Region could receive some of the additional water supply developed by the Preferred Program Alternative.

Habitat restoration in the Bay Region has a low potential to affect water supply because water from the Bay, which would be used to maintain the restored habitat, is not otherwise used for water supply. The additional ET resulting from conversion of land to tidal or non-tidal wetlands would not cause any decrease in freshwater supplies.

Changes in operations to protect fishery resources are not anticipated to adversely affect agricultural land and water use. Water supply is not expected to be affected in these regions; therefore, agricultural land and water use resources would not be significantly affected.

### **Sacramento River and San Joaquin River Regions**

*Ecosystem Restoration.* The Ecosystem Restoration Program could convert up to 34,000 acres of important farmland, primarily on the east side of the valley and the valley trough in the Sacramento Valley and up to 11,000 acres of important farmland, primarily east of the San Joaquin River in the San Joaquin River Region.

Habitat restoration in the Sacramento River and San Joaquin River Regions may not require as much additional water per acre of habitat as the Delta Region, because much of the floodplain and meander corridor vegetation would be sustained by soil moisture and shallow groundwater storage resulting from rainfall and storm flows. Because current agricultural water use is likely

to be similar to the additional riparian water supply needed to sustain riparian corridor habitat restoration efforts. relatively small water supply impacts likely would result from these restoration activities. However, if riparian habitat is restored from natural areas not fully supporting riparian habitat, a water supply impact of perhaps 2 acre-feet per acre of riparian habitat might result. If all of the targeted 39,800 acres of riparian restoration were created from these types of natural vegetation lands, a maximum of 79,600 acre-feet of additional water would be required in the Sacramento River and San Joaquin River Regions.

*Water Quality.* As proposed in the Water Quality Program, approximately 35,000-45,000 acres of agricultural land with water quality problems (for example, the presence of selenium) may be idled in the Grasslands Subarea of the San Joaquin River Region as a measure to improve water quality in the region and in the Delta. The location of these lands and, consequently, the types of crops that would be idled are not known. But the Water Quality Program could affect up to 45,000 acres of agricultural land, including prime and unique farmland.

Again, the location and mix of crops that would be retired as part of the Water Quality Program is unknown. But assuming an average of 3 acre-feet of applied water per crop acre and a maximum of 45,000 acres of drainage problem lands idled, approximately 135,000 acre-feet of water would not be applied. As discussed for the Delta Region, this reduction in applied water does not necessarily equate to new water. Some of this water would likely be recoverable in the San Joaquin River Region by downstream or in-basin users.

*Water Use Efficiency.* Potential Water Use Efficiency Program impacts would be similar to those discussed for the Delta Region.

*Water Transfers.* Potential Water Transfer Program impacts would be similar to those discussed for the Delta Region.

*Coordinated Watershed Management.* Potential watershed activities in the Sacramento River and San Joaquin River Regions would be compatible with applicable agricultural land use plans and policies in their affected jurisdictions. Reduced grazing activities in the watershed could result in potentially significant land use impacts in these regions if they result in a loss of agricultural productivity.

*Storage and Conveyance.* Storage facilities could result in conversion of agricultural land in the foothill or mountain areas, a potentially significant and unavoidable adverse impact. Development of storage facilities also could conflict with local and regional plans regarding agricultural lands. Between 18,000 and 32,000 acres of agricultural land could be affected by the program storage elements. Because storage facility locations have not been selected, the amount of important farmland affected is not known and would be determined in project-specific environmental documentation.

Because potential storage sites are primarily in the foothills and would affect dryland crops and grasslands that rely on rainfall, applied water has not been estimated.

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## Comparison of Preferred Program Alternative to Existing Conditions

Comparison of the Preferred Program Alternative to existing conditions indicates that:

- All significant adverse impacts identified when making a comparison to the No Action Alternative would still be significant when compared to existing conditions.
- CALFED is proposing actions for levee protection, storage and conveyance, and ecosystem restoration, which could result in additional large-scale land conversions affecting agricultural lands, particularly in the Delta. Adverse impacts resulting from the CALFED alternatives combined with the expected future conversion of agricultural lands when compared to existing conditions.
- The water supply reliability actions from the Water Use Efficiency, Water Quality, and Storage and Conveyance programs could improve the availability and quality of water for agricultural purposes above the existing conditions baseline. While CALFED is expecting an overall improvement in water supply reliability for agriculture relative to the No Action Alternative, there is still the potential that the benefits provided by the Preferred Program Alternative could be diminished by unforeseen future conditions such as extended drought. Consequently, while the benefits of the alternatives were analyzed using reasonable approximations of future conditions, it should be acknowledged that water supply reliability could be worse than currently exists.

In summary, the conclusions regarding the significance of project effects on surface water quality when compared to existing conditions would be similar to those compared to No Action.

## Mitigation Strategies

Avoidance or minimization strategies could include:

- Developing assurance measures to increase water supply reliability, such as providing long-term water supply contracts.
- Siting and aligning program features to avoid or minimize impacts on agriculture.
- Examining structural and nonstructural alternatives to achieving project goals without affecting agricultural land.
- Implementing features that are consistent with local and regional land use plans.
- Working with local and regional jurisdictions to amend local plans and policies to bring program features into compliance.

- Protecting other agricultural land of equivalent productive potential for agricultural use without restrictions. This could be accomplished via easements.
- Implementing erosion control measures to the extent possible during and after project construction activities. These erosion control measures can include grading the site to avoid acceleration and concentration of overland flows, using silt fences or hay bales to trap sediment, and revegetating areas with native riparian plants and wet meadow grasses.
- Protecting exposed soils with mulches, geotextiles, and vegetative ground covers to the extent possible during and after project construction activities to minimize soil loss.
- Scheduling construction activities so that current crops may be harvested prior to construction initiation.
- Developing agricultural infrastructure, buffers, and other tangible support for remaining agricultural lands. These buffers should have vegetation compatible with farming and habitat objectives.
- Providing the CALFED benefits of water supply reliability to agricultural water users on an equitable basis considering the nature and extent of impacts on agricultural resources, including land and water.

## Potentially Significant Unavoidable Impacts

Program actions associated with the Ecosystem Restoration, Levee System Integrity, and Water Quality Programs, and Storage and Conveyance components could convert existing agricultural uses, including prime and unique farmland. Locally implemented water transfers also could convert existing agricultural uses to other land uses, although not specifically CALFED Program uses.

## *Agricultural Economics*

### Comparison of Preferred Program Alternative to No Action Alternative

#### Delta Region

*Ecosystem Restoration.* Direct impacts of this Ecosystem Restoration Program would primarily affect the Delta Region where agricultural land would be taken out of production. The crops removed could range from a mix of field and forage crops (corn, grain, and pasture) to high-value orchards. The agricultural land would be purchased at a negotiated fair market value to reduce economic hardship on local farmers. These impacts would result in a gross revenue loss of \$50

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to \$135 million per year. Some of this acreage and revenue likely would shift to other regions of the state, placing more demand on existing surface water and groundwater resources in those regions.

*Water Quality.* Control of upstream drain water quality and quantity from the Water Quality Program could reduce the salinity of water diverted in the Delta for irrigation. Benefits could include reduced costs, higher yields, and more flexible crop selection. Water quality BMPs, if applied to Delta agriculture, could raise production costs.

*Levee System Integrity.* The Levee System Integrity Program would benefit Delta agriculture by providing greater protection from inundation and salinity intrusion. Setback levees would require purchasing and converting agricultural land. The value of crops taken out of production could range from \$6 to \$13 million per year. This loss may be offset by lower flood risks to remaining agricultural lands.

Additionally, the loss of farmland may adversely affect the financial viability of local agencies, especially water and reclamation districts.

*Water Transfers.* The Preferred Program Alternative would provide increasingly better water transfer opportunities.

*Storage and Conveyance.* Conveyance options would require conversion of agricultural land that produces crop revenues of between \$1.9 and \$6.2 million per year. Setback levees would require purchasing and converting agricultural land and losing the value of crops taken out of production. To the extent that dredging reduces the amount of land that setback levees require, dredging could result in a lesser impact by causing less crop damage. Loss of this revenue is considered a significant adverse economic impact.

Potential charges imposed on agricultural water use to recover costs of program components could lead to significant changes in agricultural activities (for example, land use, crop selection, and water use). Impacts of water quality changes on agriculture may be caused by changes in the salinity of water used for irrigation, measured as TDS. Potential impacts could arise because of reduced yields of salt-sensitive crops, additional water application and management costs due to salinity, or foregone revenue due to restricted crop selection. Several components of the Preferred Program Alternative could affect the TDS of water delivered for agricultural use, including flows associated with the Ecosystem Restoration Program, Storage and Conveyance components, and BMPs or other components of the Water Quality Program.

In the middle Delta, irrigation water quality under the Preferred Program Alternative and dual Delta conveyance contingent strategy could average between 121 and 240 ppm, which converts to an EC range of 0.22 to 0.37 mmho/cm. The average EC during the months of highest salinity ranges from 0.21 to 0.42. Assuming an effective leaching fraction of 15%, the soil salinity would be  $1.5 \times 0.42 = 0.63$  in the worst case. The most sensitive vegetable crops begin to experience salinity effects at 1.0 EC. Therefore, no significant positive or negative impact is expected from water quality changes in the middle Delta.



- Providing cost-sharing and other financial assistance to reduce the indirect impacts potentially resulting from the cost of the Water Use Efficiency and Water Quality programs.
- Purchasing water acquired for habitat purposes with temporary or rotating contracts so that the same land or locality is not affected every year.
- Continuing the flow of property tax revenues to the local counties, providing opportunities for alternative industries to develop (that is, recreation) and other economic incentives.
- Implementing financial incentives to increase wildlife forage on agricultural lands (pay for inefficient harvest methods). Reducing unit charges for water when a farmer implements measures to control discharge of contaminants in excess of regulatory requirements.
- Altering water delivery schedules during shortages to reward farmers who implement measures to control discharge of contaminants in excess of regulatory requirements.
- Creating a loan program to support construction of agricultural pollution control facilities.
- Providing technical assistance to farmers wishing to install pollution control facilities.
- Developing assurance measures to increase water supply reliability such as providing long-term water supply contracts.
- Creating tax incentives for long-term agricultural zoning.
- Providing technical and financial assistance to develop a regional solution to the San Joaquin Valley drainage problem.
- Scheduling construction activities in a manner so that current crops may be harvested prior to construction initiation.
- Paying fair market value for any crops destroyed or taken out of production on private or leased lands as a result of project construction.
- Compensating property owners for the value of their land and associated improvements, including dwelling units, in compliance with state regulations for providing relocation assistance to displaced persons or businesses.
- Avoiding fallowing or shifting crops that require high input and output expenditures.

### **Potentially Significant Unavoidable Impacts**

Unavoidable impacts on agricultural economics with the greatest potential to be significant are loss of prime and unique farmland to other uses, such as for habitat or levee setbacks. These

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456	437
2027	
<u>483</u>	<u>437</u>
2966	

<u>Xolo</u>	<u>com</u>
1714	1181
194	673
<u>544</u>	<u>109</u>
2452	1963

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469	694
29	67
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577	913

<u>SJ</u>	<u>com</u>
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<del>286</del>	1724
1954	377
1147	<u>8497</u>
625	
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